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AUTHOR Coulson, John M.
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ABSTRACT

To make appropriate decisions leading to improved learning opportunities, educational practitioners need the latest and best information. The Educational Resources Information Center (ERIC) system was established to acquire, catalog, and store many different kinds of information in education and related fields. With the help of Federal funds, selected state and local educational agencies are providing access to this comprehensive knowledge base through establishment of educational information centers (EIC). The general purpose of this report is to provide an introduction to EIC operations, which are discussed in terms of objectives, processes, products, minimum equipment and facilities, funding levels, and staffing patterns. It is intended for the educator who is relatively inexperienced in technical information handling and transfer, but who is charged with planning for the establishing a document-based information system in education. (Author/SJ)

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September, 1972

Toward Establishing an Educational Information Dissemination Center

John M. Coulson
National Institute of Education*

Introduction

To make appropriate decisions leading to improved learning opportunities for children, youth, and adults, educational practitioners need the latest and best information. One kind of information they require, for example, is tested products of research and development, and promising, exemplary practices of school districts. The Educational Resources Information Center (ERIC) system was established to acquire, catalog, and store many different kinds of information in education and related fields. With the help of Federal funds, selected State and local educational agencies are providing access to this comprehensive knowledge base through establishment of educational information centers (EIC).

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Purpose

The operation of an EIC consists of a number of elements. The general purpose of this report is to provide an introduction to EIC operations, which are discussed below in terms of these elements:

- Objectives
- Processes
- Products
- Minimum equipment and facilities
- Funding levels
- Staffing patterns.

This report provides suggestions drawn from three sources: pertinent literature; three years of personal experience in operating a successful educational information center; and visits to selected EIC's. It is intended for the educator who is relatively inexperienced in technical information handling and transfer, but who is charged with planning for and establishing a document-based information system in education.

Certain elements which should be a part of an operating EIC, such as external formal evaluation, are not discussed due to limitations of length. Likewise omitted are detailed portrayals of already functioning information systems at local, State and national levels. Interested readers are encouraged to contact project directors of Educational Information Centers, a list of which is included in Appendix B. Additional detailed information can be obtained from the sources listed in the Selected Bibliography.

Goals and Objectives

The goal of an educational information system is to increase the transfer of information from the producers of knowledge to educational decision-makers. These include, but are not limited to, principals, curriculum specialists, counselors, and increasingly, classroom teachers. The user and his problems and requirements are central to the information system. To help clients define local problems and consider alternative solutions the educational information system needs to utilize interpersonal communication.

OBJECTIVES

In this report, minimum broad objectives of an EIC are these:

(1) to acquire, maintain, and establish access to a technical information base;
(2) to provide relevant information to various types of users;
(3) to transform and disseminate materials;
(4) to develop a follow-up and feedback system.

Technical or program information encompasses at least the following:

- research and clinical evidence in the form of reports, journal articles, and unpublished materials;
- referral to people, places, and resources;
- descriptions of promising educational practices;
- advice or consultant help.

Technical information is distinct from both public information (public relations) and either management or statistical information. The first broad objective calls for the establishment of linkage with appropriate national information systems such as ERIC and a continuing effort to add to the resource base through acquisition, storage, and retrieval of information. Local and State information sources also can be instituted and maintained to augment national resources.

The second broad objective means that various user groups in a defined service area have to be identified in terms of their requirements and preferences. A way to begin is to administer a user survey. One outcome of the user survey is a categorization of users by agency levels (e.g., secondary) and educational functions (e.g., principal). A next step is to prioritize these user groups, perhaps with the help of an advisory group or panel. Information services and products can then be planned. To design and conduct an efficient and effective user need study is not easy. The reader is urged to consult the literature. Unless the staff which establishes

the information system is unusually proficient in this area, it generally is preferable that consultant help be hired to design the study properly. Once potential user groups are identified, they will have to be educated about the information services to be made available. Evidence from the Pilot State Dissemination Program (see Metzger, Bibliography) suggests an effective way to inform others of the service initially is through group meetings and circulation of sample information materials and products, followed by personal contacts with individual users or small groups.

The third broad objective refers to the transformation and dissemination of materials. Transformation is the process of compiling, synthesizing, interpreting and otherwise repackaging technical documents in forms that enhance their usefulness to practitioners. Some existing centers repackage already existing abstracts on single topics, such as drug education, while others generate new information in the form of reviews or summaries. Dissemination is the process of making users aware of developments, products, and services and then providing both intellectual and physical access to these informational products in time to permit their use in the client's setting. Dissemination activity might also include conducting seminars and workshops and issuing newsletters periodically.

The fourth objective encompasses user feedback. A minimum requirement in developing a follow-up and feedback

system is the collection of data on both user satisfaction and information system effectiveness. As records are kept of information requests, as user need studies are conducted, as feedback flows in, continuous adjustments are made in the operation of the Educational Information Center. Within funding limitations, new resources are acquired and others discarded, service areas are contracted or expanded, and new staff is hired.

System Processes

From the viewpoint of the information system, there are at least four kinds of processes. The first, acquisition, refers to the planned and continuous collection and screening of information resources, including current information about school practices from local, State and national sources such as ERIC. The second system process pertains to technical activity which involves surrogation, such as indexing and abstracting. Dissemination, the third system process, implies providing information materials either on demand or on a regular schedule. Dissemination materials might include original documents, reprints, interpretive reviews, state of the art papers, referral lists, repackaged ERIC resumes, and so on. The fourth system process relates to follow-up and feedback, including maintenance of meaningful records of incidence of use, user satisfaction, facilitating use of information products, and direct and indirect service costs.

Client

A minimum of four client or user services is typically provided. Central to each of these user services is the emphasis on person-to-person communication. The first, query negotiation, occurs when an information specialist or another system operator confers with a client to aid him in defining problem or question, to identify limitations or constraints, and to discover the uses to which the information will be put. This "bounding of the question" is followed by the formulation of a strategy to search the information bank or, in some cases, by referral to specialists. If information is retrieved, it is screened and analyzed for relevance to the client, his problem, and the intended use of the information. Finally, client briefing occurs when an agent of the system goes over the process and product of the search and thereby sets the stage for feedback from the client.

Primary and Secondary Information Products

Primary products are those which are given to clients in their original form. The most basic is the document itself - the technical report, dissertation, journal article, or evaluation study. Another primary product is the referral

list of school sites, consultants, and so forth.

Bibliographies, abstracts, indexes, and reviews are usually referred to as secondary or derived products. Interpretive reviews are also derived products. It should be noted that high quality interpretive reviews require great skill, time and money to develop.

Issues

It is not within the scope of this brief paper to discuss all or even most of the issues relating to products. Yet new project directors of EIC's need to be alerted to alternative sides of several issues. One key issue concerns the form the response to the client will take. Should the document required by the client be in hard copy or microfiche (a thin sheet of film which contains up to 90 pages of material)? Microfiche is relatively cheap to buy or reproduce and is easy to store. On the other hand, to read the fiche requires a microfiche reader. Also, many people are not accustomed to reading the fiche and feel uncomfortable not being able to write on the image they see. By contrast, hard copy is quite expensive,* but is more portable. Certainly microfiche can't be distributed if educators can't conveniently get to a fiche reader; a survey of available readers, then, is mandatory.

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*Each fiche costs about 9 cents to the subscriber of monthly standing orders. Individual titles can be ordered by other customers at sixty-five cents per title for fiche. Hard copy costs $3.29. per hundred pages and $6.58. for pages 101 to 200.

A related problem is whether to lend the fiche or give it away. While out on loan, it can't be used by others and its recall can prove troublesome. If given to clients, then a fiche reproducer will have to be rented or purchased. Some centers begin by providing abstracts free but charging for complete reports or articles beyond a very limited number of pages.

A second issue is the extent to which the ERIC data bases should be augmented. Some topics and areas are not covered well or at all by ERIC. Extensive curriculum materials or copies of locally-produced innovative materials, for instance, are frequently not found in ERIC. The user needs study should yield helpful data here as should contacts with such information systems as the Bay Area Information Center (San Mateo, California), Research and Information Services for Education (King of Prussia, Pennsylvania), and South Carolina centers to name a few. See Appendix C for a list of these educational information centers. In addition, the Educational Reference Center of the National Institute of Education in Washington, D.C., provides technical assistance to directors of EIC's who ask for it.

Resources

Effective planning and development of the resource base should take into account already existing information sources at the local, State, and national levels. If the Educational Information Center is located close to a

university, State, or regional library, then planners of the service unit should consult with them as to how to make best use of their specified resources, such as journal collections, dissertations and theses, microfiche reproduction equipment, specialized indexes and abstracts, and so forth. The acquisitions policy will also be shaped in large part by the needs and characteristics of users to be served. Since available funds are limited, priorities need to be established with respect to degree of depth and breadth of the resources to be collected. Shall the focus be on current available literature during the start-upphase? What subject matter fields will be covered? Basically, the kind and type of resources to be acquired depends on how planners view the role of the service unit in relation to defined groups of users. If, for instance, the service area is relatively diversified in terms of users and if there are no existing resources, then planners may want to begin building toward a reasonably comprehensive collection of educational journals, key indexing and abstracting services, and vertical file materials. Central to any collection of resources if the Educational Resources Information Center (ERIC) which is a national information network in education for acquiring, abstracting, indexing, storing, and retrieving research reports and program descriptions. Over 100,000 documents have been entered into the ERIC system to date. Monthly and cumulative indexes, Research in Education (RIE), announce the availability of documents in both microfiche and hard

copy form. Its companion volume, Current Index to Journals in Education (CIJE), is a monthly index of over 550 journals in education and related fields since 1969. Due to copyright restrictions, the journal articles are not found in CIJE.

A suggested minimum resource base is provided in Appendix D.

Staffing

Although existing State and local/regional educational information centers exhibit diversity in staffing roles and positions, these patterns are emerging:

- project manager (project director)

  The project director should have manifested previous administrative and leadership ability, preferably in the field of education and have shown evidence of knowledge, if not skill and experience, in dissemination and utilization activities. His primary commitment should be to the project and most if not all of his work time should be devoted to planning, managing, and providing leadership to the project, especially in program and budget areas. Some basic knowledge of evaluation processes and of survey techniques would be helpful.

- information and retrieval specialist

  Ideally, the retrieval specialist should be an information scientist who is an expert in the field of information handling and transfer. He should be experienced in designing and directing the formation and maintenance of a comprehensive resource system as well as the evolution of well conceived search strategies. He should have some knowledge of computer systems. His major interest should be in serving users and their needs.

- information technicians/analysts (optional)

  Backup support service in terms of an information technician is desirable, especially in the area of cataloging, acquisitions, and other processing functions. Some existing Educational Information Centers hire part-time technicians (sometimes from graduate departments of library science); other centers prefer a full-time staff position.

. clerical (1 executive secretary; 1-2 clerk typists)

An executive secretary provides clerical support to the project director and the project. The executive secretary takes notes at meetings, handles major correspondence, helps keep adequate records, takes dictation, and supervises the work of the clerk-typists. At least one clerk-typist is needed, especially once the project starts to handle a volume of requests. If two are needed, one might be assigned to the information scientist and his aides, with the other functioning as a combination receptionist- typist for the project as a whole.

. assistant project director (education specialist; optional depending on size and scope of project)

An assistant project director can perform critical services such as designing and conducting seminars and workshops for system users; coordinating query negotiations; analyzing information requests, conducting user need studies, and so on.

. editorial and/or public relations specialist (optional)

Some of the chief functions performed by the editorial specialists include preparing public relations materials, developing brochures and newsletters, and writing interpretive research reports.

The most important leadership position is that of the project director. It is he who plans, coordinates and supervises the efforts of the project staff, and it is he who gives purpose and direction to their endeavors.

Equipment and Facilities

Equipment

Whatever equipment is used in the Educational Information Center should be compatible with the ERIC system, its products (such as Research in Education), and the ERIC Document Reproduction Service (EDRS). Necessary equipment probably should be acquired on the basis of rendering the

most appropriate and useful service to clients. A list of minimum equipment might include the following: microfiche readers (3-4 at approximately $100.00 to $150.00 each), a reader-printer (at from $1,400.00 to $1,600.00 each), reproduction/duplication equipment, (costing from $1,500.00 to $3,000.00) and general office and library equipment (shelves, cabinets, fiche files, etc.). Some experienced project directors also recommend leasing or buying a microfiche reproduction unit. Many project staff recommend purchasing equipment service contracts. Many of the existing EIC's use computer access to the ERIC and CIJE information bases. A partial list of types of computers used in State and local educational information cernters is contained in Appendix C. Basically there are two kinds of computer software packages. The first, a "batch" system, permits the system operator to make a number of different literature searches simultaneously; an example is the improved QUERY package. The second, or "interactive" type, is done "on line" at a computer terminal and allows the system operator to modify his search strategy as he conducts the search. Examples of the "interactive" type include DIALOG which utilizes a T.V. tube display and ORBIT which employs the teletype output. Costs to install and operate the improved QUERY software package are relatively minimal but it has built-in limitations as to searching capability (see Krahmer, Bibliography). On the other hand, "interactive" searches

are much more powerful but are expensive. If printing and distance costs are included, it is estimated the minimum yearly costs of "interactive" systems range from $25,000. to $30,000.

Facilities

Minimum requirements for facilities should include at least a service area for clients and a work area for information technicians, in addition to the usual office spaces. The minimum square footage to accommodate these areas in existing EIC's ranges anywhere from 900 to 1500 square feet. As additional staff is hired, the need for space increases, so flexible arrangements of furniture and equipment are of prime concern.

Funding

Typical yearly budgets vary widely. Many of the existing centers fall within the $75,000. - $100,000. range for the initial year of operation. Since staff salaries are a significant part of the budget and since they vary considerably across the country, it is difficult to pinpoint accurate cost estimates. To date there has been no definitive study of Educational Information Center operations which has yielded comparable costs based on common formats. It is very important that the project director begin to keep records of service costs according to generally accepted accounting principles.

Training Requirements

Even though the existing State and local Educational Information Centers have functioned for a relatively short time, it is still possible to list minimum probable training requirements for project directors and retrieval specialists. Such a list of training requirements (but in no particular order) appears in Appendix A. This list was compiled on the basis of evaluation reports of the Pilot State Dissemination Program, site visits by Office of Education staff, training sessions conducted for Pilot State personnel, and State and local service unit self-evaluations. The requirements are both specialized to a role position as well as spread across the two role positions of director and information specialist. There was an effort to distinguish between selection criteria and training requirements. Previous management experience, for instance, might be a selection criterion for project directors, but specific expertise in goal setting, resource allocation, and needs determination within the context of EIC operations would constitute a training requirement.

Summary

At least three important generalizations were emphasized in this brief report. Because of the wide diversity of client needs, an effective Educational Information Center needs to provide a variety of different forms of information. A second guideline is that the Center must be accessible to users; if it is not, then educators simply will not use it, regardless of the quality of its services and products. The last is that interpersonal communication between the service agency and the client is vital to the proper identification and utilization of the most appropriate information. This third feature has been incorporated into a proposed Educational Extension System (EES) program of the National Institute of Education. Included in the EES are field agents who receive the back-up support of the Educational Information Centers.

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Appendix A

Suggested Minimum Training Requirements

Project Managers

1. Managing a remote-control Dissemination and Utilization System (supervision, reporting, feedback, etc.)
2. Identification and use of consultants
3. Project administration and management: goal-setting, resource allocation, needs determination, staff selection and utilization, etc.
4. Relationship of project to SEA/LEA structure
5. Self-evaluation procedures and practices
6. Public relations and dissemination of project services

Retrieval Specialists

1. Training for mastery of ERIC system to the extent they can train clients to use ERIC independently)
2. Retrieval and coding procedures
3. Information product transformation
4. Building a comprehensive resource base
5. Record-keeping
6. Query negotiation

1. Change-agent theory and practice
2. Team approach to problem-solving
3. Identifying SEA/LEA practices
4. Interpreting research results
5. Keeping abreast of R&D products and exemplary school practices

Appendix B

Selected State and Local Educational Information Centers

Oregon Pilot State Dissemination Project
Oregon Board of Education
942 Lancaster Drive, NE
Salem, Oregon 97310

Utah Pilot State Dissemination Project
Utah State Board of Education
1400 University Club Building
136 East South Temple Street
Salt Lake City, Utah 84111

South Carolina Pilot State Dissemination Project
South Carolina State Department of Education
1429 Senate Street
Columbia, South Carolina 29201

Research and Information Services for Education (RISE)
198 Allendale Road
King of Prussia, Pa. 19406

Research Information Center
District of Columbia Public Schools
415 12th Street, NW
Washington, D.C. 20004

State Education Information Center
Massachusetts State Department of Education
Olympia Avenue
Wolburn, Massachusetts 01801

Merrimack Education Center
101 Mill Road
Chelmsford, Massachusetts 01824

Project Communicate
Kansas State Department of Education
120 E. Tenth Street
Topeka, Kansas 66612

INFORMS
Iowa Department of Public Instruction
Grimes Office Building
Des Moines, Iowa 50319

Research Information Center
Grand Forks Public School District #1
Grand Forks, North Dakota 58201

Bay Area Information Center
San Mateo County Board of Education
590 Hamilton Street
Redwood City, California 94063

Florida Educational Resources Information Center
State of Florida Department of Education
258 Knott Building
Tallahassee, Florida 32304

Texas Information Services Project
Texas Education Agency
11th and Brazos
Austin, Texas 78711

Appendix C

Types of Computers Used in Selected State and Local Educational Information Centers

This list is incomplete and is intended only to give the relatively inexperienced project director an idea of the types of computers actually in use in selected educational information centers.

As of the writing of this report, Project RISE, the Research Information Center of the D.C. Public Schools, and the Bay Area Information Center (California) are using the DIALOG software package.

Educational Information Center	Type of Computer
Oregon Pilot State Dissemination Project	360/50
South Carolina Pilot State Dissemination Project	RCA Spectra 70
Research Information Center, D.C. Public Schools	RCA Spectra 70
Grand Forks, North Dakota, Research Information Center	360/40
Florida Research Information Center	360/40

Appendix D

Minimum Suggested Resource Base

Title	Price
Research in Education Monthly abstract journal available from the U.S. Government Printing Office	$ 21.00 a year for 12 issues
1967 Annual Index Reports	$ 3.25
1968 Annual Index Reports	$ 8.25
1969 Annual Index	$ 6.25
1970 Annual Index	$ 6.00
1971 Annual Index Available from GPO	$ 7.00
ERIC Microfiche Entire Collection (Nov.1966-June 1972) Available from ERIC Document Reproduction Service, Bethesda, Maryland	$705.00
Thesaurus of ERIC Descriptors Available from CCM Information Corporation (a subsidiary of Crowell, Collier and Macmillan)	$ 8.95
Current Index to Journals in Education Monthly index to journal and periodical literature in education Available from CCM	$ 39.00 a year for 12 issues
Cumulative semiannual and annual volumes to subscribers Available from CCM	$ 35.00
Encyclopedia of Educational Research 4th edition (Robert Ebel, editor. American Educational Research Association, Macmillan Company, 1969)	$ 27.50
Research Studies in Education Annual subject-author index of doctoral studies in education Phi Delta Kappa, Bloomington, Indiana	
1970 Issue, published 1972	$ 7.00
1969 Issue, published 1971	$ 7.00
1968 Issue, published 1969	$ 6.00

Title	Price
Handbook of Research on Teaching (N.L. Gage, Editor. AERA, Rand McNally, 1963)	$ 17.50
National Education Association Research Service Provides manual searches of NEA and other materials (Washington, D.C.)	$ 80.00 approximately to members of American Association of School Administrators

In addition, it is probably desirable to subscribe to selected general journals such as Phi Delta Kappan as well as to certain subject matter journals of professional associations such as the English Journal, Social Education, and so on.

Once the service is underway, careful monitoring through journal citation counts and other means will begin to reveal where and how this minimum resource base can be strengthened.